Abstract:

Method and Device for Atomizing Metal Melts

In a method for atomizing metal melts, in which the liquid metal bath is sprayed from a tundish via an outlet opening by the aid of a gas into a cooling chamber, or onto a surface to be coated while compacting the comminuted particles by the aid of a propellant gas, the liquid metal melt via an annular gap is introduced into the outlet opening, into which a hot gas having a temperature of between 250°C and 1300°C and a supercritical pressure of between 2 and 30 bars is ejected through a Laval nozzle concentrically with said opening. The hot gas is contacted with the melt bath at a speed exceeding supersonic speed, with a radial outwardly directed component or with a twist.

The device for carrying out the method includes a melt tundish (1) and an immersion tube (4) immersed in the melt (2) while forming an annular gap surrounding the outlet opening for the melt (2) and a lance (7) for the ejection of a propellant gas, wherein the height-adjustable lance (7) carries a Laval nozzle (9). (Fig. 1)